

**REMARKS**

Claims 1-7 are pending and stand ready for further action on the merits.

**I. Interview**

Applicant notes with appreciation that the Examiner conducted an interview with Applicant's representative on January 13, 2004 to discuss the outstanding issues. The Examiner was helpful in clarifying his position.

The following comments give a more detailed description of the discussion between the Examiner and Applicant's representative during the January 13, 2004 interview.

**II. Prior Art-Based Issues**

The following prior art rejections are pending:

- A. Claims 1-2, 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Toya**;
- B. Claims 1-2, 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of **Moon** and **Kirk et al.**;
- C. Claims 3-4 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Toya** or **Moon** as applied to claims 1-2, 5-7 above, and further in view of **Matsumoto et al.**, and **Milton**; and
- D. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Toya** and **Moon** in view of **Matsumoto et al.**, **Kirk** and **Milton**.

Applicant respectfully traverses each of the rejections.

**IIA. TOYA**

In order to further distinguish from Toya, Applicant encloses herewith a Declaration Under 37 CFR 1.132 by Mr. Yasuhiro Yoshioka (hereinafter the "Second Declaration"). Further details of this evidence of patentability will follow below.

Toya teaches a method of forming an image on a light sensitive material which comprises a support having provided thereon at least one layer containing light-sensitive silver halide grains having an average grain size of no greater than 0.2 microns, and the light-sensitive silver halide grains have a coverage rate of no greater than 1 g/m<sup>2</sup>, based on silver. (See Abstract). Based on the disclosure of Toya, the gist of his invention is the size and concentration of the silver halide grains in the light-sensitive material. Toya is not concerned to any significant degree with matters such as a surface active agent and a color toning agent in the photothermographic material.

Applicant respectfully submits that Toya fails to make the presently claimed invention obvious, since Toya fails to teach or fairly suggest a photothermographic material containing a fluorinated surface active agent as defined by inventive formula (F) in combination with a phthalazine compound and a phthalic acid compound, as presently claimed. In the July 11, 2003 Amendment, claim 1 was amended to further distinguish from Toya, i.e., to recite that the fluorinated surface active agent (Formula (F)) has

an alkylene group bonded directly to the perfluoroalkyl group. Toya fails to teach or fairly suggest the fluorinated surface active agent as presently claimed.

As the MPEP directs, all the claim limitations must be taught or suggested by the prior art to establish a *prima facie* case of obviousness. See MPEP § 2143.03. Since Toya fails to teach or suggest the inventive fluorinated surface active agent (Formula (F)) wherein an alkylene group bonded directly to the perfluoroalkyl group, Applicant respectfully submits that a *prima facie* case of obviousness has not been made regarding the disclosure of Toya.

Furthermore, Toya only suggests the use of a possible combination of a phthalazine and phthalic acid toning agent in column 7, lines 23-24 amongst a long list of possible toning agents. In addition, in the exemplified photothermographic materials, Toya uses phthalazinone alone, see column 16, line 53. As such, the skilled artisan would not be motivated to use the combination of a phthalazine and phthalic acid toning agent in the photothermographic material.

Even though a *prima facie* case of obviousness cannot be said to exist based on the teachings of Toya, the evidence of unexpected results in the enclosed Second Declaration would remove the *prima facie* case.

The present invention is drawn to a photothermographic material having excellent heat developing properties as well as image stock stability. The image stock stability prevents the

attachment of foreign materials such as dust, etc., which cause white spots on the developed film.

As a result of intensive investigations, the present inventors have surprisingly found that photothermographic materials show excellent heat-developing properties and image stock stability when the photothermographic material contains a unique surface active agent of formula (F)



wherein Rf is a perfluoroalkyl group, Rc is an alkylene group and n is 1, in the presence of color toning agents of phthalazine and phthalic acid. The experiments described in the present specification are evidence of this fact. The following table includes data related to the image stock stability of the inventive photothermographic material, and is obtained from Table 1' in the Second Declaration.

Table 1'

Sample No.	Base Formula	Fluorine-based Surface Active Agent	White Spots	Note
1	1	Comp. A	8	Comparison
2	2	Comp. A	7	Comparison
001	1	FC-1	10	Comparison
002	1	FC-2	9	Comparison
003	1	FC-3	11	Comparison
004	1	FS-18	3	Invention
005	1	FS-19	3	Invention
006	1	FS-21	2	Invention
007	1	FS-26	4	Invention
008	1	FS-38	3	Invention
009	1	FS-39	3	Invention
010	1	FS-41	2	Invention
011	2	FC-1	9	Comparison
012	2	FC-2	8	Comparison
013	2	FC-3	10	Comparison
014	2	FS-18	2	Invention
015	2	FS-19	1	Invention
016	2	FS-20	1	Invention
017	2	FS-22	2	Invention
018	2	FS-27	3	Invention
019	2	FS-38	2	Invention
020	2	FS-40	1	Invention
	1	FC-4	10	Comparison
	1	FS-13	3	Invention
	2	FC-4	9	Comparison
	2	FS-13	2	Invention

FS-13 -  $C_8F_{17}CH_2CH_2SO_2N(C_3H_7)(CH_2CH_2O)_4(CH_2)_4SO_3Na$  - Invention

FC-4 -  $C_8F_{17}SO_2N(C_3H_7)(CH_2CH_2O)_4(CH_2)_4SO_3Na$  - Toya

FC-3 -  $C_8F_{17}SO_3K$  - Toya

Comp. A = N-perfluorooctylsulfonyl-N-propylalanine potassium salt and polyethylene glycol mono(N-perfluorooctylsulfonyl-N-propyl-2-aminoethyl) ether

The structure of the surface active agents FC-1, FC-2 and FC-3 can be found on page 80 of the specification. The structure of the surface active agents FS-18, FS-19, FS-21, FS-26, FS-38, FS-39 and FS-41 can be found on pages 11-12 of the specification.

The data in Table 1' shows that photothermographic materials incorporating surface active agents having an alkylene group bonded directly to the fluorinated end group have far superior resistance to white spots than photothermographic materials incorporating surface active agents which do not have an alkylene group bonded directly to the fluorinated end group. For instance, there is at least a 175% increase in white spots in the photothermographic material of Comparative Sample No. 2 having 7 white spots whereas Inventive Sample No. 007 has 4 white spots. The improvement is even more dramatic when the inventive surface active agents are compared to the surface active agent disclosed by Toya (herein labeled "FC-4").

Based on the above-described data, the improved properties of the inventive photothermographic material incorporating surface active agents having an alkylene group bonded directly to the fluorinated end group are **unexpected** based on the disclosure of Toya, either taken alone or in combination with the prior art.

During the January 13, 2004 interview, the Examiner voiced concerns that this data is not sufficient to overcome the *prima facie* case of obviousness, since the exact photothermographic materials described in the exemplified embodiments of Toya were not used. Applicant respectfully submits that if the photothermographic materials exemplified in Toya were prepared and modified by replacing the surface active agent with the inventive surface active agent of Formula (F), then the modified

photothermographic materials with the inventive surface active agent of Formula (F) would have similar improvements to the resistance to white spots as shown in the above-experiments.

Based on Mr. Yasuhiro Yoshioka's expert understanding of the chemical process involved in the image forming step, he has come to the reasonable conclusion that there is no chemical present in the photothermographic materials of Toya which is not present in the inventive photothermographic materials that would inhibit the effects (improvement to the resistance to white spots) of the inventive surface active agent of Formula (F). Also, there is no chemical present in the inventive photothermographic materials which is not present in the photothermographic materials of Toya that would enhance the effects (improvement to the resistance to white spots) of the inventive surface active agent of Formula (F). Mr. Yoshioka explains his position on page 33 of the enclosed Rule 132 Declaration.

Based on the foregoing, Applicant respectfully submits that significant patentable distinctions exist between the teachings of Toya and the present invention.

#### **IIB. MOON**

The gist of Moon's invention is to reduce low density spots visible after thermal processing, by including a protective coat having a film forming binder comprised of a water dispersible polymer containing hydroxy pendent groups and specific surfactants.

As mentioned above, Applicant has amended claim 1, so that the surface active agent of formula (F) has an alkylene group "Rc" bonded to the perfluoroalkyl group "Rf" to further distinguish from Moon. Moon teaches the use of three types of surface active agents to be used in the photothermographic materials. These three types are described as formulas I-III in column 3, lines 17-50. It is clear from the disclosure, that Moon fails to fairly suggest the use of the surface active agents having the inventive formula (F) wherein the alkylene group "Rc" bonded to the perfluoroalkyl group "Rf".

Furthermore, Moon teaches that this combination of three types of surface active agents gives "surprisingly superior low density spot reduction," see column 3, lines 52-57. However, Applicant respectfully submits that the spots referred to by Moon are black spots (so-called "black pepper"). This is not the same property as the present inventor has found is improved using inventive surface active agents of formula (F), i.e., resistance to white spots. Accordingly, Moon fails to teach the concept that inserting an alkylene group so that it is bonded directly to the perfluoroalkyl group "Rf" in the surface active agent of Formula III improves the material's resistance to white spots.

Regarding the toner in the photothermographic material, Moon describes a laundry list of possible toners in column 12, lines 13-53. In this list, at column 12, lines 37-38, there is no teaching or suggestion that phthalazine can be combined with phthalic acid, as presently claimed. In addition, Moon only uses



phthalimide in the examples. See column 19, line 12. Accordingly, the skilled artisan would not be motivated to use the combination of phthalazine and phthalic acid as the toning agent as asserted by the Examiner.

Moreover, Applicant has conducted comparative experiments to show that the combination of phthalazine and phthalic acid as recited in the present invention is superior to the succinimide and phthalazine used in the working example of Moon. These experiments are described in the Declaration filed under 37 C.F.R. §1.132 on August 8, 2003 ("8/03 Declaration"). The composition of Moon was found to not have any effect on the white spot because of low image density due to low toner activity.

Not only does the instant invention possess unexpectedly superior results relative to Moon, but as the MPEP directs, all of the claim limitations must be taught or suggested by the prior art to establish a *prima facie* case of obviousness. See MPEP §2143.03. Applicant respectfully submits that the presently claimed invention is not rendered obvious by Moon, since Moon fails to fairly suggest that the photothermographic material contains a toner which is a combination of phthalazine and phthalic acid and a surface active agent of formula (F) has an alkylene group "Rc" bonded to the perfluoroalkyl group "Rf", as presently claimed.

**IIC. MATSUMOTO et al., KIRK et al. AND MILTON**

As mentioned above, Toya and Moon fail to teach or suggest the photothermographic material comprising a surface active agent of inventive formula (F) in combination with a phthalazine/phthalic acid compound toning agent, nor the unexpectedly improved properties engendered by this combination in the inventive photothermographic material. The patentable distinctions between the presently claimed invention and the teachings of Toya and Moon, as described above, are herein incorporated by reference.

The Examiner, aware of the deficiencies of Toya and Moon, cites Matsumoto et al., Kirk et al. and Milton in order to cure those deficiencies. Applicant respectfully submits that the teachings of the combination of Matsumoto et al., Kirk et al. and Milton fail to cure these deficiencies.

The gist of the invention of Matsumoto et al. is to give a recording material little fog and dynamic color development based upon the presence of an antifoggant of general formula (A)-(F). See column 2, lines 11-39. Matsumoto et al. fail to teach or suggest the surface active agent of inventive formula (F). Also, Matsumoto et al. fail to teach using the combination of phthalazine and phthalic acid as the toning agent, as presently claimed. In column 19, lines 11-36, Matsumoto et al. generically teach many types of toning agents which can be used in the recording medium. However none of the toning agents include phthalazine, as presently claimed. Also, Matsumoto et al. use

phthalazinone as the toning agent in each of the examples. See column 22, line 60. Thus, Applicant respectfully submits that Matsumoto et al. fail to cure the deficiencies of Toya and Moon.

Regarding Kirk et al., the Examiner cites this reference for teaching the polyhalogenate compound of inventive claim 4 and the phosphorus compound of inventive claim 3. As such, Kirk et al. fail to cure the deficiencies of the combination of Toya, Moon, and Matsumoto et al.

With regard to the teachings of Milton, the Examiner cites Milton for teaching a phosphorus compound of inventive claim 3. Since Milton fails to teach or suggest the fluorinated surfactant of inventive formula (F) in combination with a color toning agent of phthalazine and phthalic acid compounds, Applicant respectfully submits that Milton fails to cure the deficiencies of the combination of Toya, Moon, Matsumoto et al. and Kirk et al. As such, withdrawal of all of the rejections is respectfully requested.

#### **Conclusion**

In view of the above amendments and comments, Applicant respectfully submits that the claims are in condition for allowance. A notice to such effect is earnestly solicited.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicant hereby petitions for an extension of two (2) months to January 18, 2004 in which to file a reply to the Office Action.

Application No. 09/899,261


The required fee of \$420.00 is enclosed herewith.

If the Examiner has any questions concerning this application, he is requested to contact the Garth M. Dahlen, Ph.D., Esq. (#43,575) at the offices of Birch, Stewart, Kolasch & Birch, LLP.

If necessary, the Commissioner is hereby authorized in this, concurrent, and further replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fee required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By   
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Marc S. Weiner, #32,181

Garth M. Dahlen, #43,575

MSW/GMD/gh

P.O. Box 747  
Falls Church, VA 22040-0747  
(703) 205-8000